Electronics
Course Code: 17106

Rational Statement:

Electronics is a supporting knowledge and skill in 12 of the 16 career clusters. Electronic technology is part of our everyday lives. It is the core component and central nervous system of modern manufacturing techniques and business communications. Contemporary society depends on this technology and the evolution of applied electronics continues at an ever-increasing pace.

Suggested Grade Level: 9-12

Topics Covered:

- Safety
- Component usage and identification
- Calculations showing the relationship between resistance, voltage, current and power
- Circuit fundamentals
- Career Exploration

Core Technical Standards & Examples

Indicator 1: Determine general technical literacy skills	
Bloom's Taxonomy Level	**Standard and Example**
Applying	**ELTRON1.1. Employ appropriate units and abbreviations** Examples: • Convert whole number expressions to appropriate electronics exponential expression • Differentiate between electronics exponential expression from scientific notation • Define abbreviations used in a schematic diagram
Applying	**ELTRON1.2. Determine unknown values in multiple types of electronic circuits** Examples: • Calculate unknown electronic unit values using given or measured values • Apply appropriate formula to solve for unknown values in a variety of circuits • Apply ratings of resistors based on color bands

Understanding	**ELTRON1.3 Identify proper terminology** Examples: • Identify the parts of a circuit • List the parts of a circuit • Draw a parallel and series circuit
Indicator 2: Demonstrate proficiency in electronic safety	
Bloom's Taxonomy Level	**Standard and Example**
Evaluating	**ELTRON2.1. Determine physiological responses to electrical shock** Examples: • Classify ways electrical shock can damage the human body • Describe how electrical shock can cause death • Evaluate safety concerns in various working environments
Applying	**ELTRON2.2. Demonstrate proper safety procedures in the use of soldering and test equipment** Examples: • Operate and use proper personal protective equipment • Describe methods to reduce the severity of electrical shock • Observe and follow all safety rules based on *OSHA standards **Occupational Safety and Health Administration*
Indicator 3: Demonstrate proficiency in circuit assembly	
Bloom's Taxonomy Level	**Standard and Example**
Creating	**ELTRON3.1. Construct a circuit using schematic symbols for identified components** Examples: • Apply resistor color code to identify proper resistor values • Maintain proper polarity for electrolytic capacitors • Locate components correctly in relation to a schematic diagram
Creating	**ELTRON3.2. Construct circuit boards using correct soldering principles and techniques** Examples:

	• Connect components in proper position on circuit board • Handle all components carefully • Determine proper amounts of solder to cover the connection
Evaluating	**ELTRON3.3. Determine cause of non-operational circuits** Examples: • Troubleshoot a bread-board circuit • Repair a circuit board • Select the proper test equipment for repair of faulty circuits

Indicator 4: Determine proper use of test equipment	
Bloom's Taxonomy Level	**Standard and Example**
Applying	**ELTRON4.1. Measure resistance, voltage, and current in circuits** Examples: • Connect test leads in proper positions • Place meter selector switch in proper position • Record meter reading using correct measurement values
Understanding	**ELTRON4.2. Classify equipment for signal analysis** Examples: • List equipment that provides signal outputs • Identify equipment that measures signals • Identify the various signals
Indicator 5: Troubleshoot circuits for proper operation	
Bloom's Taxonomy Level	**Standard and Example**
Applying	**ELTRON5.1. Calculate voltage, current, and power solutions in circuits** Examples: • Employ correct formula or law to solve for unknown values • Record calculated values using proper measurement values • Troubleshoot circuits for proper operation

Evaluation	**ELTRON5.2. Troubleshoot solutions to analyze circuit operation** Examples: • Measure the values of components within a circuit • Graph calculated and measured values • Compare values to determine if they are within circuit parameters

Indicator 6: Electronics career exploration	
Bloom's Taxonomy Level	**Standard and Examples**
Applying	**ELTRON6.1 Research career opportunities in the electronics field** Examples: • Utilizing the career exploration software research and write a report on career opportunities in the electronics field • Utilize the career exploration software to research educational requirements for chosen career path • Utilizing career exploration software, update students portfolio